

# Symptoms & Diagnosis of Fatty liver Diseases in Human beings

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## ABSTRACT

Fatty liver disease is alarming now days in human beings in India. Here we briefly summarize different types of fatty liver diseases i.e. Alcoholic and Non Alcoholic liver disease, their causes, symptoms and diagnosis. Different dietary approaches produce different severities of disease along the NAFLD spectrum and likely work by unique mechanisms. Therefore it is important for the researcher to choose the diet also that best suits the needs of their study and will help the patients to fight with the disease.

**Keywords:** Liver, Fatty, Alcoholic, symptoms, analysis, treatment, Cirrhosis, disease etc.

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## INTRODUCTION

A fatty liver is the result of the excess fat in liver cells. Fatty tissue slowly builds up in the liver when a person's diet exceeds the amount of fat his or her body can handle. A person has a fatty liver when fat makes up at least 5% of the liver. Simple fatty liver can be a completely benign condition and usually does not lead to liver damage. However, once there is a buildup of simple fat, the liver becomes vulnerable to further injury, which may result in inflammation and scarring of the liver.

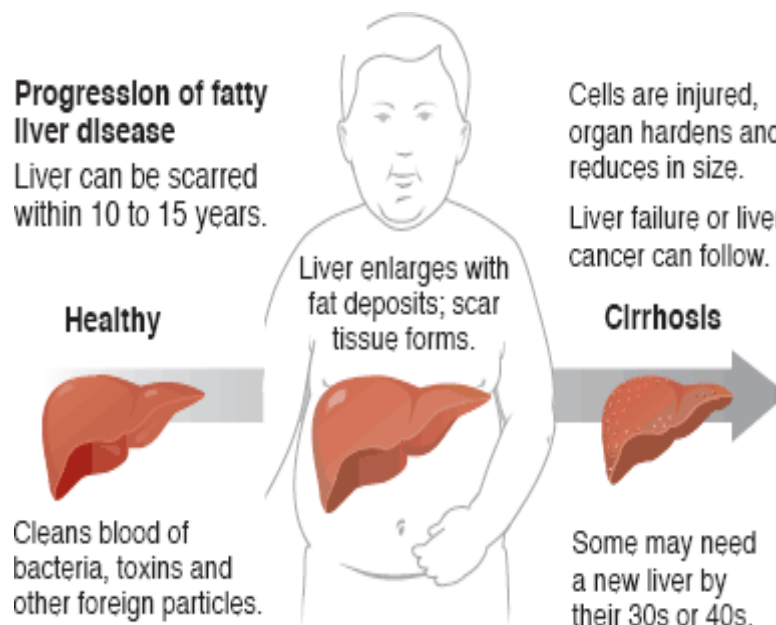


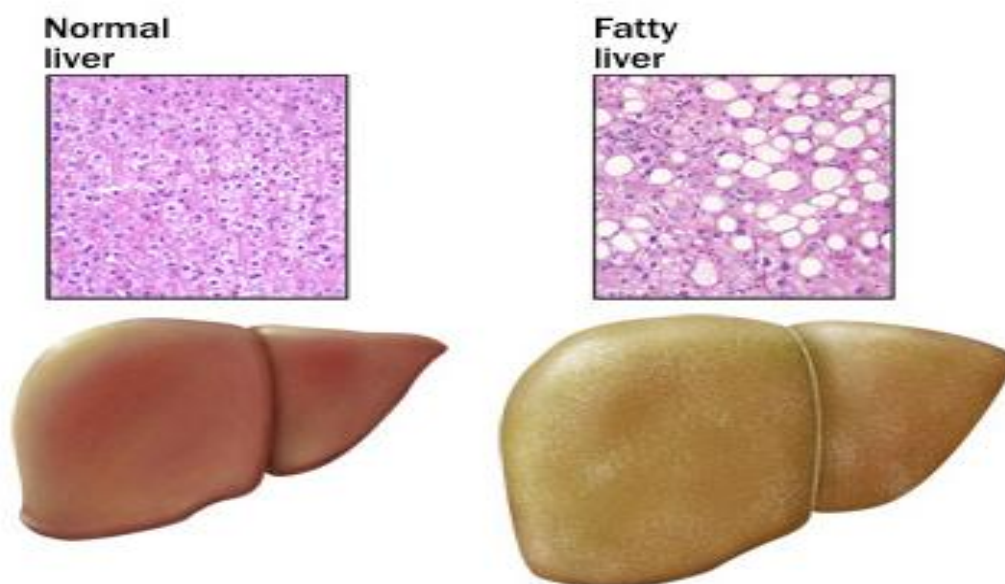
Figure 1: Fatty Liver Disease



**Figure 2: Fatty Liver Disease causes inhalation of many tablets**

Fatty liver, also known as fatty liver disease (FLD) or hepatic steatosis, is a reversible condition wherein large vacuoles of triglyceride fat accumulate in liver cells via the process of steatosis (i.e., abnormal retention of lipids within a cell). Despite having multiple causes, fatty liver can be considered a single disease that occurs worldwide in those with excessive alcohol intake and the obese (with or without effects of insulin resistance). The condition is also associated with other diseases that influence fat metabolism. When this process of fat metabolism is disrupted, the fat can accumulate in the liver in excessive amounts, thus resulting in a fatty liver. It is difficult to distinguish alcoholic FLD from nonalcoholic FLD, and both show micro vesicular and macro vesicular fatty changes at different stages. You can also get fatty liver disease during pregnancy.

Accumulation of fat may also be accompanied by a progressive inflammation of the liver (hepatitis), called steatohepatitis. By considering the contribution by alcohol, fatty liver may be termed alcoholic steatosis or nonalcoholic fatty liver disease (NAFLD), and the more severe forms as alcoholic steatohepatitis (part of alcoholic liver disease) and non-alcoholic steatohepatitis (NASH).



**Figure 3: Diagram showing a Normal liver and Fatty Liver**

Some fat in your liver is normal. But if it makes up more than 5%-10% of the organ's weight, you may have fatty liver disease. If you're a drinker, stop. That's one of the key causes of the condition.

There are two main types of fatty liver disease:

- a) Alcoholic liver disease (ALD)
- b) Nonalcoholic fatty liver disease (NAFLD)

### ALCOHOLIC LIVER DISEASE (ALD)

You can get alcoholic liver disease from drinking lots of alcohol. It can even show up after a short period of heavy drinking. Genes that are passed down from your parents may also play a role in ALD. They can affect the chances that you become an alcoholic. And they can also have an impact on the way your body breaks down the alcohol you drink.

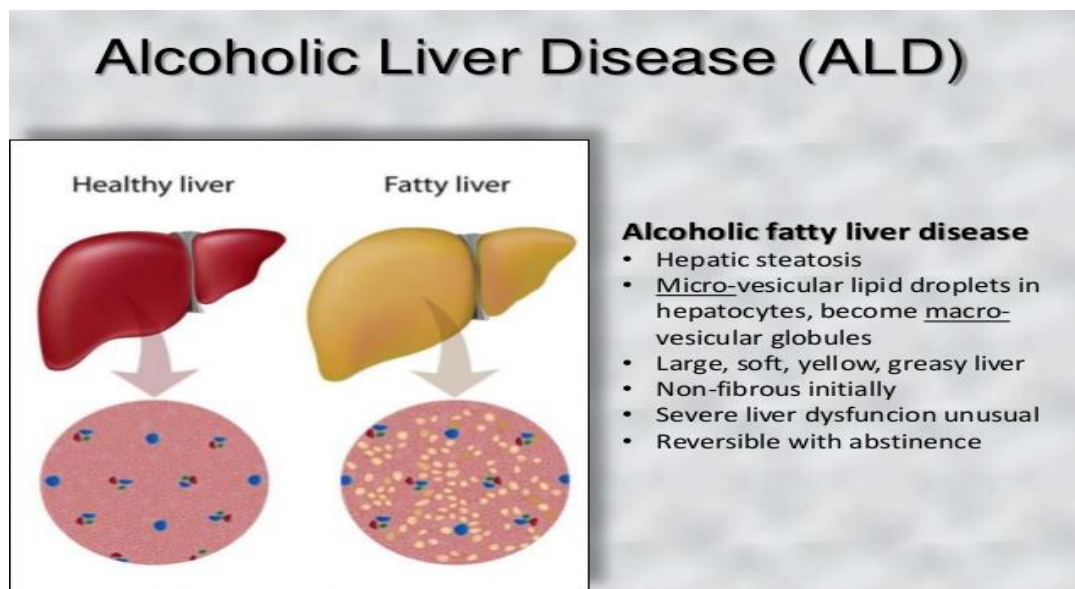


Figure 4: Symptoms and structure of alcoholic Liver Disease

Other things that may affect your chance of getting ALD are:

- i. Hepatitis C (which can lead to inflammation in your liver)
- ii. Too much iron in your body
- iii. Being obese

### NONALCOHOLIC FATTY LIVER DISEASE (NAFLD)

It's not clear what causes this type of fatty liver disease. It tends to run in families. It's also more likely to happen to those who are middle-aged and overweight or obese. People like that often have high cholesterol and diabetes as well.

Other causes are:

- i. Medications
- ii. Viral hepatitis
- iii. Autoimmune or inherited liver disease
- iv. Fast weight loss
- v. Malnutrition

Some studies show that too much bacteria in your small intestine and other changes in the intestine may be linked to nonalcoholic fatty liver disease.

## NONALCOHOLIC FATTY LIVER DISEASE (NAFLD)

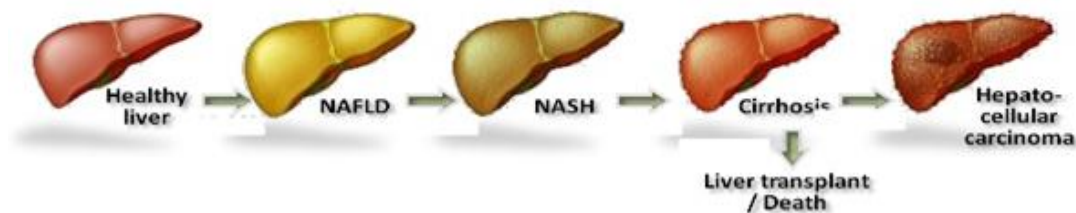


Figure 5: Symptoms and structure of Non alcoholic fatty Liver Disease (NAFLD)

### SIGNS AND SYMPTOMS

Fatty liver typically has no associated symptoms. You may experience fatigue or vague abdominal discomfort. Your liver may become slightly enlarged, and your doctor can detect this during a physical exam. Excess fat can cause liver inflammation. If your liver becomes inflamed, you may have a poor appetite, weight loss, abdominal pain, weakness, and confusion. You might have fatty liver disease and not realize it. As time goes on, often years or even decades, you can get problems like:

- Feeling tired
- Loss of weight or appetite
- Weakness
- Nausea
- Confusion, poor judgment, or trouble concentrating

You might have some other symptoms, too. You could have a pain in the center or right upper part of your belly. And the skin on your neck or under your arms may have dark, colored patches. If you have alcoholic liver disease, you may notice that the symptoms get worse after a period of heavy drinking.

### What causes fatty liver disease?

The most common cause of fatty liver disease is obesity. Whereas several decades ago obesity was not very common, according to current statistics more than 50% of Indians are overweight. It is estimated that 75% of obese individuals are at risk of developing a simple fatty liver. Up to 23% of obese individuals are at risk of developing fatty liver with inflammation. Besides obesity, nutritional causes of fatty liver disease are:

- starvation and protein malnutrition,
- long term use of total parenteral nutrition (a feeding procedure that involves infusing nutrients directly into the blood stream),
- intestinal bypass surgery for obesity,
- rapid weight loss.

Certain conditions often accompany and may contribute to fatty liver disease:

- diabetes mellitus,
- hyperlipidemia (elevated lipids in the blood),
- insulin resistance and high blood pressure.

Other causes include:

- Genetic factors,
- Drugs and chemicals such as alcohol, corticosteroids, tetracycline and carbon tetrachloride.

### How does fat get into the liver?

Fat from a person's diet is usually metabolized by the liver and other tissues. If the amount of fat exceeds what is required by the body, fat is stored in the fatty tissue. Other reasons for accumulation of fat in the liver could be the transfer of fat from other parts of the body or the inability of the liver to change it into a form that can be eliminated.

### DIAGNOSIS AND TREATMENT OF FATTY LIVER DISEASE

You might find out that you have the disease when you get a routine checkup. Your doctor might notice that your liver is a little larger than usual. Other ways your doctor might spot the disease are:

**Blood tests:** A high number of certain enzymes could mean you've got fatty liver.

**Ultrasound:** It uses sound waves to get a picture of your liver.

**Biopsy:** After numbing the area, your doctor puts a needle through your skin and takes out a tiny piece of liver. He looks at it under a microscope for signs of fat, inflammation, and damaged liver cells.

#### Flow chart for diagnosis

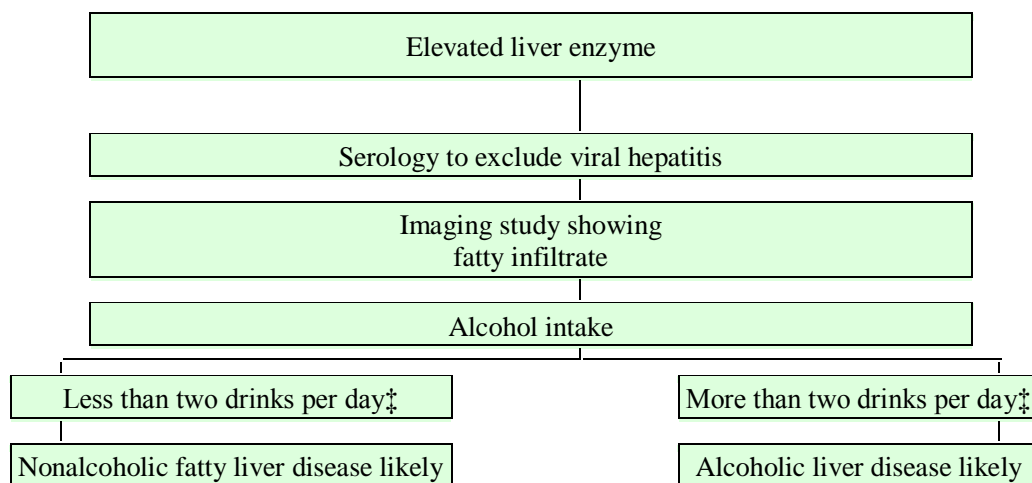


Figure 6: Flowchart of diagnosis of fatty Liver Disease

### Treatment

The treatment of fatty liver depends on its cause, and, in general, treating the underlying cause will reverse the process of steatosis if implemented at an early stage. Two known causes of fatty liver disease are an excess consumption of alcohol and a prolonged diet containing foods with a high proportion of calories coming from lipids. For the patients with non-alcoholic fatty liver disease with pure steatosis and no evidence of inflammation, a gradual weight loss is often the only recommendation. In more serious cases, medications that decrease insulin resistance, hyperlipidemia, and those that induce weight loss have been shown to improve liver function. For advanced patients with non-alcoholic steatohepatitis (NASH), there are no currently available therapies. Up to 10% of people with cirrhotic alcoholic FLD will develop hepatocellular carcinoma. The overall incidence of liver cancer in nonalcoholic FLD has not yet been quantified, but the association is well-established.

There is no specific treatment. But you can improve your condition by managing your diabetes, if you have it. If you have alcoholic liver disease and you are a heavy drinker, quitting is the most important thing you can do. Talk to your doctor about how to get help. If you don't stop you could get complications like alcoholic hepatitis or cirrhosis. Even if you have nonalcoholic fatty liver disease, it can help to avoid drinking. If you are overweight or obese, do what you can to gradually lose weight -- no more than 1 or 2 pounds a week. Eat a balanced and healthy diet and get regular exercise. Limit high-carb foods such as bread, grits, rice, potatoes, and corn. And cut down on drinks with lots of sugar like sports drinks and juice.





**Figure 7: Food Sources for treatment of fatty Liver Disease**

### Can fatty liver disease be prevented?

By choosing a healthy life style, you may prevent obesity - the number one reason for fatty liver disease. Please remember that a healthy diet and exercise are important components of any weight-loss regimen. The following are some suggestions for preventing fatty liver disease:-

- Choose to lead a healthy lifestyle.
- If you are overweight, strive for a gradual and sustained weight loss.
- Eat a well-balanced diet that is low in saturated fats and high in fibre.
- Minimize sugar consumption, reduce the intake of fried food
- Introduce exercise into your routine, at least four times a week. You can enjoy walking, swimming, gardening, stretching.
- Avoid alcohol.

### CONCLUSION

If you have fatty liver because of obesity or unhealthy eating habits, your doctor may also suggest that you increase physical activity and eliminate certain types of food from your diet. Reducing the number of calories you eat each day can help you lose weight and heal your liver. You can also reverse fatty liver disease by reducing or eliminating fatty foods and foods high in sugar from your diet. Choose healthier foods like fresh fruits, vegetables, and whole grains. Replace red meats with lean animal proteins like chicken and fish. Fortunately, many cases of fatty liver don't develop into liver disease. The liver can repair itself, so if you take the necessary steps to treat high cholesterol, diabetes, or obesity, you can reverse your fatty liver. If you're a heavy drinker, stopping drinking may heal your liver completely. A liver biopsy can help your doctor identify permanent liver damage, as well as determine the severity of damage and the best way to treat it.

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